

Name Key

Date \_\_\_\_\_

LESSON  
8.1

# Practice C

For use with pages 506-513

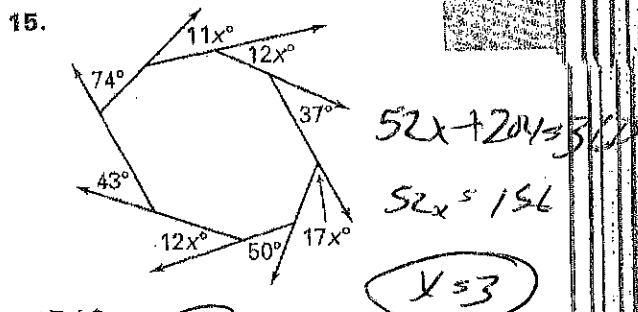
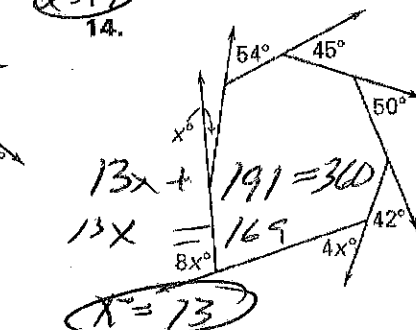
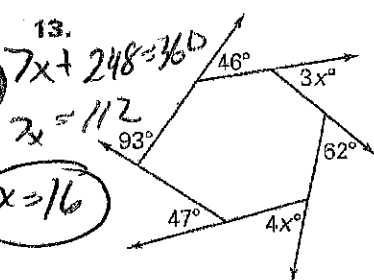
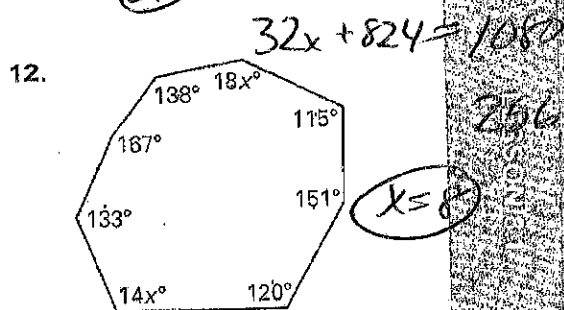
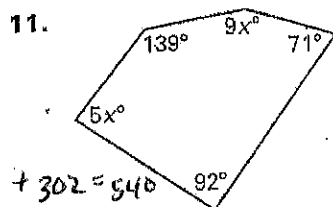
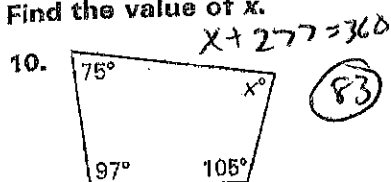
Find the sum of the measures of the interior angles of the indicated convex polygon.

1. 21-gon  $3420^\circ$
2. 35-gon  $5940^\circ$
3. 50-gon  $8640^\circ$

The sum of the measures of the interior angles of a convex polygon is given. Classify the polygon by the number of sides.

4.  $1440^\circ$   $(n-2)180 = 1440$   $n=10$
5.  $3060^\circ$   $(19)$
6.  $3780^\circ$   $(23)$
7.  $6480^\circ$   $(38)$
8.  $8100^\circ$   $(47)$
9.  $8820^\circ$   $(51)$

Find the value of  $x$ .



16. What is the measure of each interior angle of a regular nonagon?  $\frac{1260}{9} = 140$
17. The measures of the exterior angles of a convex hexagon are  $45^\circ$ ,  $60^\circ$ ,  $x^\circ$ ,  $3x^\circ$ ,  $7x^\circ$ , and  $90^\circ$ . What is the measure of the largest exterior angle?  $11x + 195 = 360$   $x = 15$
18. The measures of the interior angles of a convex decagon are  $150^\circ$ ,  $145^\circ$ ,  $130^\circ$ ,  $34x^\circ$ ,  $35x^\circ$ ,  $135^\circ$ ,  $160^\circ$ ,  $120^\circ$ ,  $30x^\circ$ , and  $21x^\circ$ . What is the measure of the smallest interior angle?  $120x + 840 = 1440$   $120x = 600$   $x = 5$

Find the measures of an interior angle and an exterior angle of the indicated regular polygon.

19. Regular heptagon  $I = 128.6$   $E = 51.4$
20. Regular dodecagon  $I = 150$   $E = 30$
21. Regular 17-gon  $I = 158.8$   $E = 21.2$
22. Regular 50-gon  $I = 172.8$   $E = 7.2$
23. Regular 70-gon  $I = 174.9$   $E = 5.1$
24. Regular 125-gon  $I = 177.12$   $E = 2.88$

$$\frac{360}{n} = Ext$$

$$180 - Ext = Int$$

Name \_\_\_\_\_

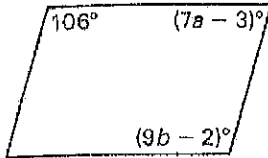
Date \_\_\_\_\_

LESSON  
8.2

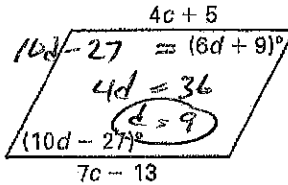
## Practice C

For use with pages 514-521

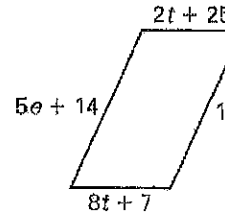
Find the value of each variable in the parallelogram.



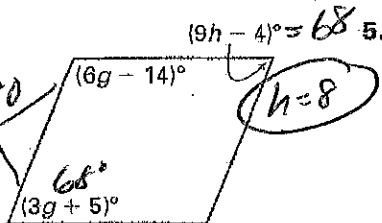
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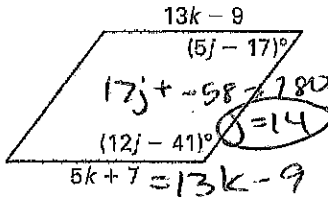
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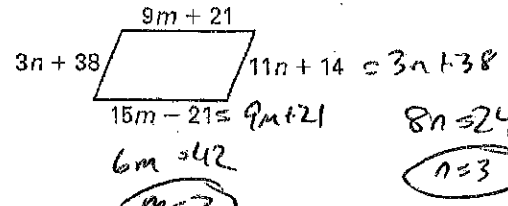
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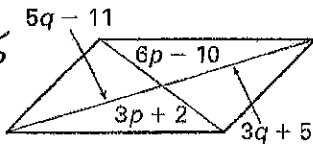
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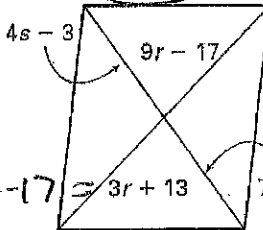
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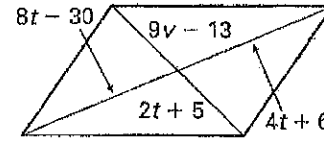
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8.

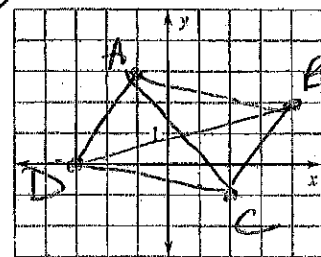


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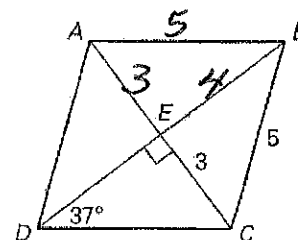


10. The coordinates for  $\square ABCD$  are  $A(-1, 3)$ ,  $B(4, 2)$ ,  $C(2, -1)$ , and  $D(-3, 0)$ . Plot the points and draw  $\square ABCD$  on the coordinate plane. Then draw the diagonals  $\overline{AC}$  and  $\overline{BD}$ . Label the intersection of the diagonals as point  $E$ . What are the coordinates of point  $E$ ?

$$E\left(\frac{-1+2}{2}, \frac{3+(-1)}{2}\right) = E\left(\frac{1}{2}, 1\right)$$

Find the indicated measure in  $\square ABCD$ . Explain.

11.  $AE$  3 diagonals bis.
12.  $AD$  5 opp side  $\cong$
13.  $EB$  4  $5^2 = 3^2 + EB^2$
14.  $DB$  8 diagonals bis
15.  $AB$  5 pyth thm
16. Perimeter of  $\triangle AEB$  12
17.  $m\angle DBA$   $37^\circ$  alt int
18.  $m\angle DEC$  90
19.  $m\angle ACD$   $53^\circ$   $90-37$
20.  $m\angle CAB$   $53^\circ$
21. Perimeter of  $\square ABCD$



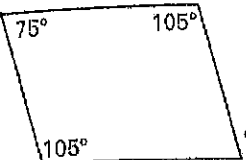
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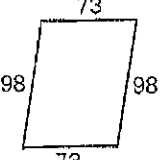
**LESSON 8.3**

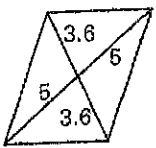
**Practice B**

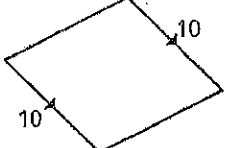
For use with pages 522-529

What theorem can you use to show that the quadrilateral is a parallelogram?

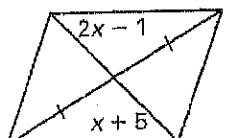
1.  *opp  $\angle$ s  $\cong$*   
*(1st lat  $\angle$ s sum to show 75°)*

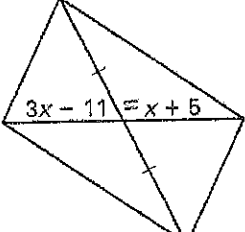
2.  *opp sides  $\cong$*

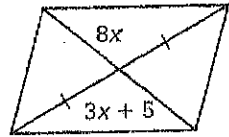
3.  *diagonals bisect each other*

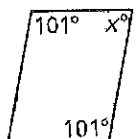
4.  *one pair opp sides Both  $\cong$  + //*

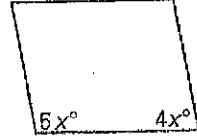
For what value of  $x$  is the quadrilateral a parallelogram?

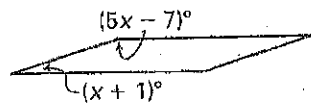
5.   *$2x-1 = x+5$*   
 *$x = 6$*

6.   *$3x-11 = x+5$*   $\rightarrow$   *$2x = 16$*   
 *$x = 8$*

7.   *$8x = 3x+5$*   
 *$5x = 5$*   
 *$x = 1$*

8.   *$x = 79$*

9.   *$9x = 180$*   
 *$x = 20$*

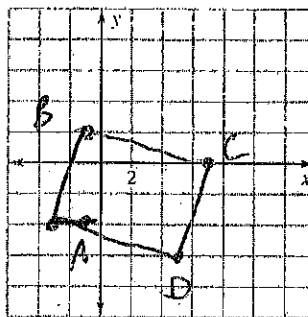
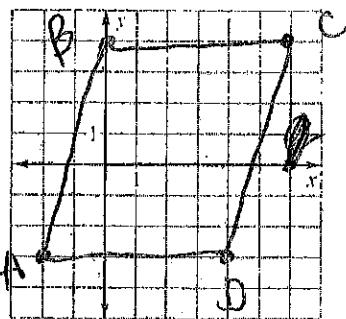
10.   *$6x-6 = 180$*   
 *$x = 31$*

**LESSON**  
**8.3**
**Practice B** *continued*  
For use with pages 522-529

The vertices of quadrilateral  $ABCD$  are given. Draw  $ABCD$  in a coordinate plane and show that it is a parallelogram.

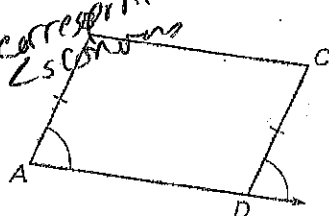
11.  $A(-2, -3), B(0, 4), C(6, 4), D(4, -3)$

12.  $A(-3, -4), B(-1, 2), C(7, 0), D(5, -6)$

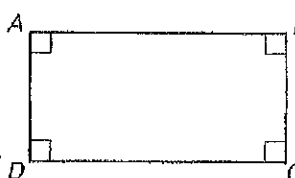


Describe how to prove that  $ABCD$  is a parallelogram.

13.



14.



15. Three vertices of  $\square ABCD$  are  $A(-1, 4)$ ,  $B(4, 4)$ , and  $C(11, -3)$ . Find the coordinates of point  $D$ .

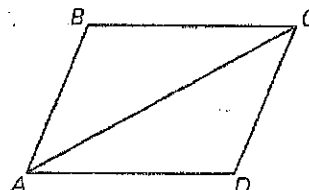
16. **History** The diagram shows a battering ram which was used in ancient times to break through walls. A log is suspended on ropes of equal length ( $\overline{GF}$  and  $\overline{HJ}$ ). The log swings, causing quadrilateral  $FGHJ$  to shift. In the diagram,  $\overline{GH} \cong \overline{FJ}$  and  $\overline{GH}$  is parallel to the ground.

- a. Identify  $FGHJ$ . Explain. *Parallelogram*  
b. Explain why the log is always parallel to the ground. *GH || ground*

17. **Proof** Use the diagram at the right.

**GIVEN:**  $\triangle ABC \cong \triangle CDA$

**PROVE:**  $ABCD$  is a parallelogram.



- ① ~  
②  $\overline{AB} \cong \overline{CD}$   
 $\overline{BC} \cong \overline{DA}$

- ③  $ABCD$  is  $\square$

- ① Given  
② CPCTC

- ③ *Opp sides are  $\cong$ , then quad is  $\square$*